IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS AND INTERFERENCES

In re Patent Application of		Confirmation No.: 5248
	Jan WEBJÖRN	Date: February 2, 2010
Serial No.:	10/500,583	Group Art Unit: 3679
Filed:	June 29, 2004	Examiner: Nahid Amiri
For:	A FLANGED MEMBER AND A JOINT COMPRISING FLANGED MEMBERS	

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF PURSUANT TO 37 C.F.R. §41.37

Sir:

Further to the Notice of Appeal filed December 3, 2009, this appeal is from the Examiner's final rejection of the claims of the above-referenced patent application as set forth in the final Office Action mailed June 9, 2009.

I. REAL PARTY IN INTEREST:

The real party in interest is the assignee of record, Verax Enginerring AB.

II. RELATED APPEALS AND INTERFERENCES:

None.

III. STATUS OF CLAIMS:

Claims 1, 2, 5-8 and 10-18 are pending and on appeal herein. Claims 1, 2, 5-8, 10-12 and 14-18 stand rejected and their rejection is on appeal herein. Claim 13 stands objected.

Claims 3-4 and 9 have been previously canceled.

IV. STATUS OF AMENDMENTS:

No amendment of the claims has been filed subsequent to the final rejection of June 9, 2009.

V. SUMMARY OF CLAIMED SUBJECT MATTER:

By way of introduction, in a pipe system or other pressure equipment device parts are sometimes joined using ring-shaped collars or flanges, as explained, for example at Specification, page 1, lines 8-22. Pressure, stresses on the parts over time may cause leakage or failure of parts. Sometimes, deformation of a part due to pressure can cause bulging of a flanged part causing it to become convex to some degree as explained, for example at Appellant's Specification, page 3, lines 11-26). According to an aspect of Appellant's invention as claimed in claims 1 and 11 described below, the flanged member is manufactured to have a concave and inclined load transferring surface of the flanged end so that if a deformation does occur due to pressure or stress bulging out would be compensated for or suppressed, as discussed, for example, at Specification, page 4, lines 17-29.

Claim 1 is directed to a flanged member 1 that is configured to be included as a first flanged member 1 in a flanged joint in a pressure equipment device. Claim 11 is directed to a joint comprising a first flanged member 1 and a second flanged member 2 adapted for a pressure equipment device (Specification, page 1, lines 23-26; Drawings, Fig. 1). Claims 1 and 11 recite that the first flanged member 1 includes a first flanged end 5 with a first end surface 10 configured to face the second end surface 11 of the second flanged end 6 of the second flanged member 2 (Specification, page 7, lines 8-13; Drawings, Fig. 1).

The first end surface includes a load transferring surface (referred to in claim 1 as a first load transferring surface) that in an unstressed condition is concave in a radial direction, is curved and defined by a concave curve function (Specification, page 7, line 28 - page 8, line 15; Drawings, Fig. 2). A proximal and a distal point on the load transferring surface, points a and b respectively, meet a plane inclined in the radial direction (Specification, page 7, line 29 - page 8, line 12; Drawings, Fig. 2 plane x).

Claims 1 and 11 also recite an innermost abutment point and an outermost abutment point of the load transferring surface, the outermost abutment point being the point situated farthest in the radial direction from the central axis of the first flanged member and the innermost abutment

point being the abutment point situated nearest in the radial direction from the central axis of the first flanged member, and a boring 13 that passes between the innermost abutment point and the outermost abutment point (Specification, page 8, lines 5-12; Drawings, Fig. 2).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL:

A. Whether claims 1, 2, 5-8 and 10-18 are indefinite under 35 U.S.C. § 112, second paragraph, for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

B. Whether claims 1, 11, 12 and 16 are anticipated under 35 U.S.C. § 102 by Watkins et al., U.S. Patent No. 4,183,562.

C. Whether claims 1, 2, 5-8, 10, 14, 15, 17 and 18 are obvious under 35 U.S.C. § 103 from Buono, U.S. Patent No. 2,940,779.

VII. ARGUMENT:

A. Rejection of claims 1, 2, 5-8 and 10-18 under 35 U.S.C. § 112, Second Paragraph

Claim 1 is directed to a flanged member configured to be included as a first flanged member in a flanged joint. Further, claim 1 states "said first flanged member comprising:" and then recites a number of elements as properties of the first flanged member. Accordingly, it can be readily understood that claim 1 is directed to a first flanged member and not to a flanged joint as a whole.

Claim 1 describes some structures of the first flanged member with respect to a second flanged member of the flanged joint. Thus, for example claim 1 recites that the first flanged end has "a first end surface configured to face the second end surface of the second flanged end of the second flanged member of said flanged joint, said first end surface comprising a first load transferring surface through which forces are transferred when assembled together with said corresponding second flanged member."

The Examiner states that it is unclear how the flanged member is configured to interact with a second flanged member, and what particular configuration is being set forth (Office Action of June 9, 2009, page 3). The Examiner then states that the recitations are merely intended use recitations.

Each portion of claim 1 that refers to the second flanged member describes a property of a structure of the first flanged member. Thus, for example, the recitations in claim 1 "the first flanged end with a first end surface configured to face the second end surface of the second flanged end of the second flanged member," and "the first end surface comprising a first load transferring surface through which forces are transferred when assembled together with said corresponding second flanged member" clarify that the first end surface and its first load transferring surface are structures that are capable of being positioned so as to face the second end surface of the flanged end of the second flanged member so as to transfer forces when assembled together. These recitations thus impose structure requirements on the first load transferring surface of the first flanged member.

Reproduced below is Fig. 2 of the Drawings illustrating the first load transferring surface of a single flanged member. It would be appreciated that a recitation such as "wherein said first load transferring surface is concave in the radial direction over at least an area that is subjected to deformation when the first flanged member is assembled together with a second flanged member" can be readily understood by person of ordinary skill in the art in connection with the single flanged member claimed in claim 1. Such a recitation clarifies that there exists a concave area of the first load transferring surface of the first flanged member, and that the location of this concave area on the first flanged member is at the portion of the first load transferring surface that is to be subjected to deformation in the assembled state due to pressure.

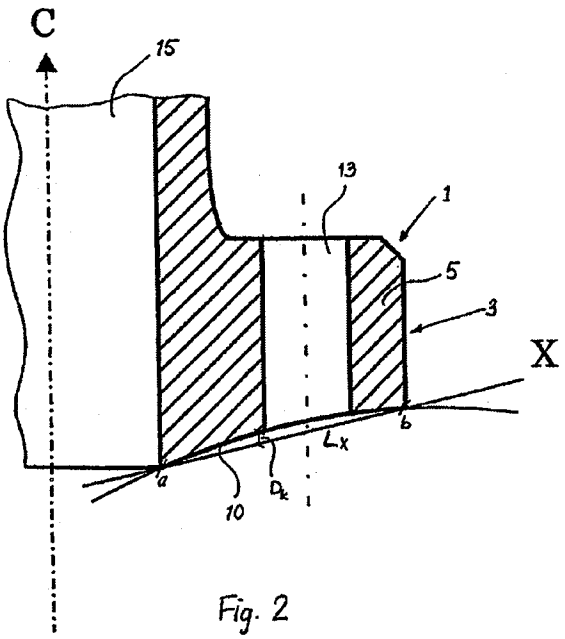

Fig. 2

Similarly, a recitation such as "said load transferring surface has an outermost abutment point...configured to abut against the second end surface of the second flanged member when assembled together with a corresponding second flanged member, the outermost abutment being an abutment point situated farthest in the radial direction from the central axis of the first flanged member" clarifies an aspect of the first load transferring surface of the first flanged member that when read together with the recitation describing the innermost abutment point of the first flanged member delimit a position of the boring recited later in the claim and thus describe an aspect of the first load transferring surface. Accordingly, it is respectfully submitted that Appellant's invention as claimed in claim 1 can be readily understood and is not indefinite to a person of ordinary skill in the art.

Therefore, the rejection of claim 1 under 35 U.S.C. § 112, second paragraph, is improper.

Claims 2, 5-8 and 10-18 were rejected only because of their dependence from claim 1. The issue raised by the Office Action on page 3 with respect to claim 11 had been addressed by the Amendment filed on March 18, 2009.

Further, with respect to claim 18, which depends from claim 1, Applicant notes as follows. The rejection of claim 18 under 35 U.S.C. § 112, second paragraph, is improper for the additional reason that claim 18 recites that the second flanged member is identical with the first flanged member. Thus, all the recitations of claim 1 describing structures of the claimed first flanged member described in relationship to aspects of the second flanged member are given additional meaning.

For example, the recitations in claim 1 "the first flanged end with a first end surface configured to face the second end surface of the second flanged end of the second flanged member," and "the first end surface comprising a first load transferring surface through which forces are transferred when assembled together with said corresponding second flanged member" become even clearer when it is borne in mind that the second flanged member is required to be identical with the first flanged member as shown, for example, in drawing Fig. 1. Thus, the manner in which the first load transferring surface of the first flanged member faces the identical structure of the second flanged member can be readily understood and is not indefinite to a person of ordinary skill in the art from claim 18. Stated differently, since claim 18 requires that the first and second flanged members be identical, the portion of the second flanged member

facing the load transferring surface of the claimed first flange member can be readily understood and is not indefinite to a person of ordinary skill. Therefore, the rejection under 35 U.S.C. § 112, second paragraph, is improper as to claim 18 for at least this additional reason.

B. Rejection of claims 1, 11, 12 and 16 under 35 U.S.C. § 102 over Watkins

The rejection over Watkins is improper for at least the reason that a first load transferring surface as claimed in claim 11 is not disclosed or suggested by Watkins.

(1) The Relative Position of the Load Transferring Surface of the First Flanged Member

Claims 1 and 11 clarify the position of the load transferring surface vis a vis the second end surface of the second flanged member.

Claim 1 requires:

> a flanged member configured to be included as a first flanged member in a flanged joint in a pressure equipment device, the flanged joint comprising the first flanged member and a corresponding second flanged member with a second flanged end having a second end surface, said first flanged member comprising: a first flanged end with a first end surface configured to face the second end surface of the second flanged end of the second flanged member of said flanged joint, said first end surface comprising a first load transferring surface through which forces are transferred when assembled together with said corresponding second flanged member.

Further, claim 11 requires:

> a joint comprising a first flanged member and a second flanged member adapted for a pressure equipment device, said first and second flanged member each comprising: at least one flanged end having an end surface comprising a load transferring surface through which forces are transferred when connecting together said first and second flanged members in an assembled state, such that in the assembled state said each load transferring surface faces the other load transferring surface.

Claim 1 requires that the first end surface, which comprises the first load transferring surface, is configured "to face the second end surface of the second flanged end of the second flanged member." Thus, claim 1 specifies the relative position of the first load transferring surface with respect to a corresponding feature of the second flanged member. Similarly, claim

11 requires that "in the assembled state said each load transferring surface faces the other load transferring surface."

Watkins discloses a marine riser conduit section coupling wherein the outer surface for each coupling member includes an effectively continuous arcuate surface extending circumferentially about substantially the entire outer surface of each coupling member from one axial extremity thereof adjacent the associated conduit section to an opposite extremity thereof (Watkins, Abstract). The Office Action cites Watkins, Fig. 6, which illustrates that upper connecting member 27 includes a flange 37 with an upwardly facing continuous arcuate surface 41, surface 41 being curved or nonlinear when viewed in cross section (Watkins, column 4, lines 18-29). The Office Action cites first end surface E which is adjacent to the second end surface E′ of the second flanged end of the second flanged member 38, the Examiner identifying first end surface E and second end surface E′ as the interface between the upper coupling member 27 and the lower coupling member 28 (final Office Action mailed June 9, 2009, page 5).

As will be explained below, claims 1 and 11 clarify that the load transferring surface is both concave and is inclined in the radial direction. Therefore, the Examiner's reliance on Watkins is misplaced if by end surface comprising a load transferring surface the Examiner reads end surface E of Watkins.

Claims 1 and 11 set forth further guidance on the relative position of the load transferring surface. Claims 1 and 11 require that the load transferring surface has an outermost abutment point in a cross-section of the first flanged member, the outermost abutment point configured to abut against the second end surface of the second flanged member when assembled together with said corresponding second flanged member. Claims 1 and 11 also require that the load transferring surface has an innermost abutment point configured to abut against a second end surface of the second flanged member when assembled together with said corresponding second flanged member. Thus, both claims 1 and 11 further describe aspects of the load transferring surface by specifying the innermost and outermost abutment points that abut the second surface of the second flanged member in the assembled state. That is, claims 1 and 11 describe that the load transferring surface must have at least two points, the innermost and outermost abutment points, that in the assembled state abut the second end surface of the second flanged member.

(2) Concave and Inclined

This Examiner's reading of the end surface E of Watkins as corresponding to the load transferring surface, however, fails to meet further requirements of claims 1 and 11 since claims 1 and 11 also require that the load transferring surface is both concave and inclined in the radial direction. In particular, claims 1 and 11 require that the load transferring surface "is concave in the radial direction over at least an area that is subjected to deformation when the first flanged member is assembled together with a second flanged member." As is readily apparent, Watkins discloses that the end surface E is straight and perpendicular to the axis of the flanged member 37 not concave and inclined in the radial direction.

Further, claims 1 and 11 require that a proximal point on the at least the portion of the load transferring surface and a distal point on the at least the portion of the load transferring surface meet a plane inclined in the radial direction of the first flanged member. Watkins discloses that the end surface E is a straight line extending in the radial direction. Therefore, Watkins fails also for this reason to disclose or suggest the recitations of claims 1 and 11.

In the alternative, should the Examiner take the position that in Watkins the outer surface 41 of the flanged member 37 is concave in the radial direction, Appellant notes as follows. As discussed, claims 1 and 11 impose requirements for the position of the load transferring surface vis a vis the second flanged member. That is, as discussed, the load transferring surface "faces" the other load transferring surface per claim 11 and the first end surface that comprises the load transferring surface faces the second end surface of the second flanged member per claim 1. Further, both claims 1 and 11 require that the load transferring surface has an innermost and outermost abutment points that abuts against the second end surface in the assembled state. The outer surface 41 of Watkins fails to meet these requirements as well.

Also, the load transferring surface, according to claims 1 and 11, must be concave over at least an area that is subject to deformation when the first flanged member is assembled together with the second flanged member. Accordingly, the outer surface 41 also fails to meet the requirements of the load transferring surface as recited in claims 1 and 11.

Therefore, the rejection under 35 U.S.C. § 112, § 102 over Watkins of claims 1, 11, 12 and 16 is improper.

A. Rejection of claims 1, 2, 5-8, 10, 14, 15, 17 and 18 under 35 U.S.C. § 103 over Buono

Claim 1 requires that at least a portion of the first load transferring surface is concave in the radial direction, such that the at least the portion of the first load transferring surface is curved and defined by a concave curve function, and that "a proximal point on the at least the portion of said first load transferring surface and a distal point on the at least the portion of said first load transferring surface meet a plane inclined in the radial direction of said first flanged member."

Buono discloses a balanced face flange for a pipe 10 adjacent to a welding neck or a collar 18 that includes an annular sealing face 30 and a flat radial outer face 16 between which a gasket 24 is enclosed. Buono discloses that the face preferably tapers uniformly forward from the axis both radially inwardly and radially outwardly of the axis (Buono, column 3, lines 4-11).

The Examiner acknowledges that Buono fails to disclose such features (Office Action, page 8). However, the Examiner alleges that such features would have been obvious because forming a concave surface using a curve instead of multiple straight lines produces no known criticality and changes in shape are obvious expedients, but that the change in shape produces no new and unexpected results (Office Action, page 8).

First, the Examiner entirely fails to address the recitation of claim 1 that the load transferring surface meets "a plane inclined in the radial direction." As discussed, claim 1 requires that a proximal point and a distal point of a concave portion of the load transferring surface meet a plane inclined in the radial direction of the first flanged member. Such an inclination of the concave surface permits expansion of the load transferring surface when stressed or under pressure.

The annular sealing face 30 is not described or suggested by Buono to be inclined in a radial direction and concave.

With respect to the lack of concavity disclosed by Buono, the Examiner mistakenly alleges that there is no known criticality associated with the concave curvature of the abutting surface, that it is well established that changes in shape are obvious expedients, and that changing the shape to yield a concave shape produces no new and unexpected results.

As would have been readily recognized by a person of ordinary skill in the art upon reading Applicant's disclosure, a flange member is provided with an inclined concave end

surface in order to prepare it against a convex bulging of the end surface caused by the affixing of the end surface of the flange member to another end surface of a second flange member and by pressure loads on the end surface over time, as explained in the Summary of the Claimed Subject Matter section. As explained further in the Specification, page 3, deformation arises in end surfaces for various reasons over time, as a result of which they do not preserve their flatness but become slightly convex, that is, bulge outwards, for example when the bolts connecting the flanges are tightened. As a result of this bulging, contact points between the end surfaces become displaced outwards in the radial direction so that sealing abutment is disturbed between the end surfaces. Accordingly, by providing a concave surface at the time of manufacture, problems associated with a straight or planar surface are avoided and a convex bulging out can be controlled or eliminated (Specification, page 4, lines 7-29). The above-identified mistaken view in the Office Action may help explain the equating of Buono's tapered surfaces to a load transferring surface that is curved and defined by a concave curve function, as required by claim 1.

Therefore the rejection under 35 U.S.C. § 103 over Buono of claims 1, 2, 5-8, 10, 14, 15, 17 and 19 is improper.

VIII. CONCLUSION:

In view of the foregoing arguments, Appellant respectfully requests that the Board of Patent Appeals and Interferences reverse the rejection of claims 1, 2, 5-8 and 10-18 in the Office Action.

Credit card payment in the amount of the required fee for filing this Appeal Brief ($270.00 - small entity) is submitted via EFS-WEB.

If this communication is filed after a shortened statutory time period has elapsed and no separate Petition is enclosed, the Commissioner for Patents is petitioned, under 37 C.F.R. §1.136(a), to extend the time for filing a response to the outstanding Office Action by the number of months which will avoid abandonment under 37 C.F.R. §1.135. The fee under 37 C.F.R. §1.17 should be charged to our Deposit Account No. 15-0700.

In the event the actual fee is greater than the payment submitted or is inadvertently not enclosed or if any additional fee during the prosecution of this application is not paid, the Patent Office is authorized to charge the underpayment to Deposit Account No. 15-0700.

Respectfully submitted,

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CLAIMS APPENDIX

The Claims on Appeal are:

1. A flanged member configured to be included as a first flanged member in a flanged joint in a pressure equipment device, the flanged joint comprising the first flanged member and a corresponding second flanged member with a second flanged end having a second end surface, said first flanged member comprising:

a first flanged end with a first end surface configured to face the second end surface of the second flanged end of the second flanged member of said flanged joint, said first end surface comprising a first load transferring surface through which forces are transferred when assembled together with said corresponding second flanged member;

at least a portion of said first load transferring surface in an unstressed condition being concave in a radial direction, such that said at least the portion of said first load transferring surface is curved and defined by a concave curve function,

wherein said first load transferring surface is concave in the radial direction over at least an area that is subjected to deformation when the first flanged member is assembled together with said second flanged member, and in the unstressed condition, a proximal point on the at least the portion of said first load transferring surface and a distal point of the at least the portion of said first load transferring surface meet a plane inclined in the radial direction of said first flanged member,

wherein said load transferring surface has an outermost abutment point in a cross section of the first flanged member, the outermost abutment point configured to abut against the second end surface of the second flanged member when assembled together with said corresponding second flange member, the outermost abutment point being the abutment point situated farthest in the radial direction from the central axis of the first flanged member,

said load transferring surface has an innermost abutment point in a cross section of the first flanged member, the innermost abutment point configured to abut against the second end surface of the second flanged member when assembled together with said corresponding second flange member, the innermost abutment point being the abutment point situated nearest in the radial direction from the central axis of the first flanged member; and

a boring passing through the first end surface at a radial distance from a central axis of the first flanged member greater than the radial distance from the central axis of the first flanged member to the

innermost abutment point, and less than the radial distance from the central axis of the first flanged member to the outermost abutment point.

2. The flanged member according to claim 1, wherein said first load transferring surface is concave over the entire extension thereof in the radial direction.

3. - 4. (Canceled)

5. The flanged member according to claim 1, wherein said first load transferring surface comprises a varyingly concave surface in the radial direction.

6. The flanged member according to claim 1, said first flanged member further comprising an internal axial through opening, said first load transferring surface having said innermost abutment point configured to abut against the corresponding second end surface of said second flanged member, said abutment point being situated nearest in the radial direction, to said opening, the concavity of the first load transferring surface extending all the way in to said abutment point.

7. The flanged member according to claim 1, wherein said first load transferring surface has said innermost abutment point configured to abut against the corresponding second end surface of said second flanged member at an internal axial through opening of said second flanged member, said innermost abutment point being situated nearest in the radial direction, to said opening, the concavity of the first load transferring surface extending all the way in to said abutment point.

8. The flanged member according to claim 1, wherein a conceived straight line that connects said proximal point of said first load transferring surface, in the radial direction, with said distal point thereof, in the radial direction, has a length Lx and the concavity of said first load transferring surface has a maximum depth Dk in relation to a conceived plane surface produced by said line, which depth Dk is of the order of 0.01 %–2 % of Lx.

9. (Canceled)

10. The flanged member according to claim 1, wherein at least a part of a transition area, between a surface of the first flanged end directed away from said first end surface and a part of the first flanged member that is substantially parallel to a longitudinal axis of the first flanged member, is shaped as a substantially elliptical area.

11. A joint comprising a first flanged member and a second flanged member adapted for a pressure equipment device, said first and second flanged members each comprising:

at least one flanged end having an end surface comprising a load transferring surface through which forces are transferred when connecting together said first and second flanged members in an assembled state, such that in the assembled state said each load transferring surface faces the other load transferring surface,

wherein, for the first flanged member, at least a portion of the load transferring surface in an unstressed condition is concave in a radial direction, such that the at least the portion of the load transferring surface is defined by a concave curve function, said load transferring surface is concave in the radial direction over at least an area that is subjected to deformation when the first flanged member is assembled together with said second flanged member, and a proximal point on the at least the portion of said load transferring surface and a distal point of the at least the portion of said load transferring surface meeting a plane inclined in the radial direction of said first flanged member,

wherein said load transferring surface has an outermost abutment point in a cross section of the first flanged member, the outermost abutment point configured to abut against the end surface of the second flanged member when assembled together with said corresponding second flange member, the outermost abutment point being the abutment point situated farthest in the radial direction from the central axis of the first flanged member,

said load transferring surface has an innermost abutment point in a cross section of the first flanged member, the innermost abutment point configured to abut against the end surface of the second flanged member when assembled together with said corresponding second flange member, the innermost abutment point being the abutment point situated nearest in the radial direction from the central axis of the first flanged member; and

a boring passing through the end surface of the first flanged member at a radial distance from a central axis of the first flanged member greater than the radial distance from the central axis of the first

flanged member to the innermost abutment point, and less than the radial distance from the central axis of the first flanged member to the outermost abutment point.

12. The joint according to claim 11, wherein the first and second flanged members each have a concave load transferring surface.

13. The joint according to claim 11, wherein the load transferring surface of the first flanged member faces the load transferring surface of the second flanged member before assembly and is inclined in the radial direction outwards to form an angle in radial cross-section, the angle being such that a distance between the two load transferring surfaces increases in the radial direction outwards, said inclined load transferring surfaces being concave.

14. The flanged member according to claim 5, wherein said concave surface has more than one radii of curvature.

15. The flanged member according to claim 1, wherein the first load transferring surface is configured to contact directly said second end surface.

16. The joint according to claim 11, wherein said load transferring surfaces of each of the first and second flanged members is configured to directly contact the load transferring surface of the remaining flanged member.

17. The flanged member according to claim 1, wherein the at least the portion of the first load transferring surface in the unstressed condition that is concavc comprises a majority of the first load transferring surface.

18. The flanged member according to claim 1, wherein the second flanged member is identical with the first flanged member.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.